

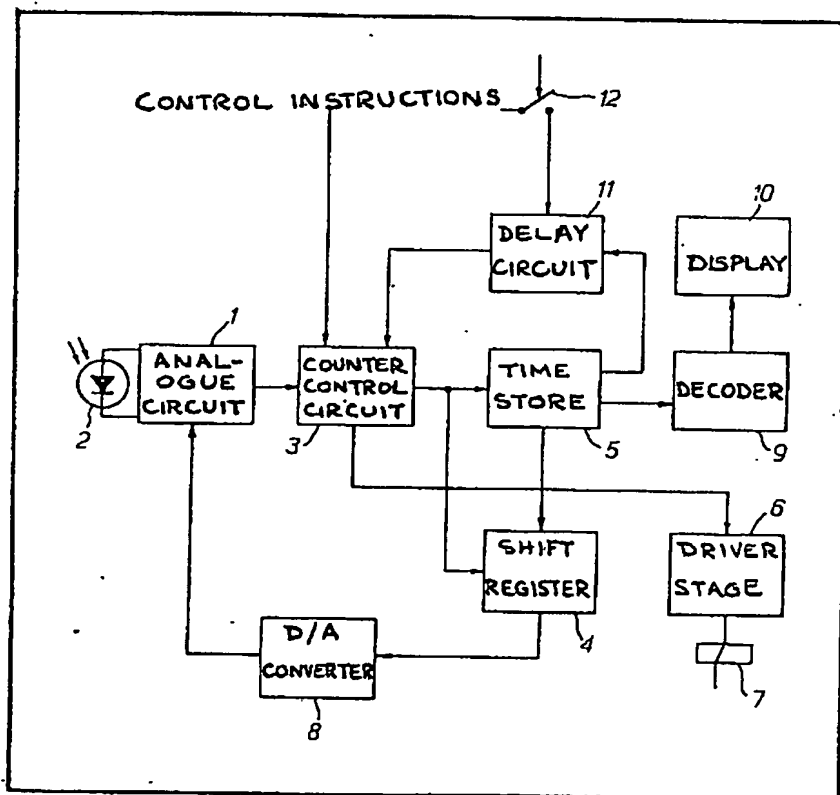
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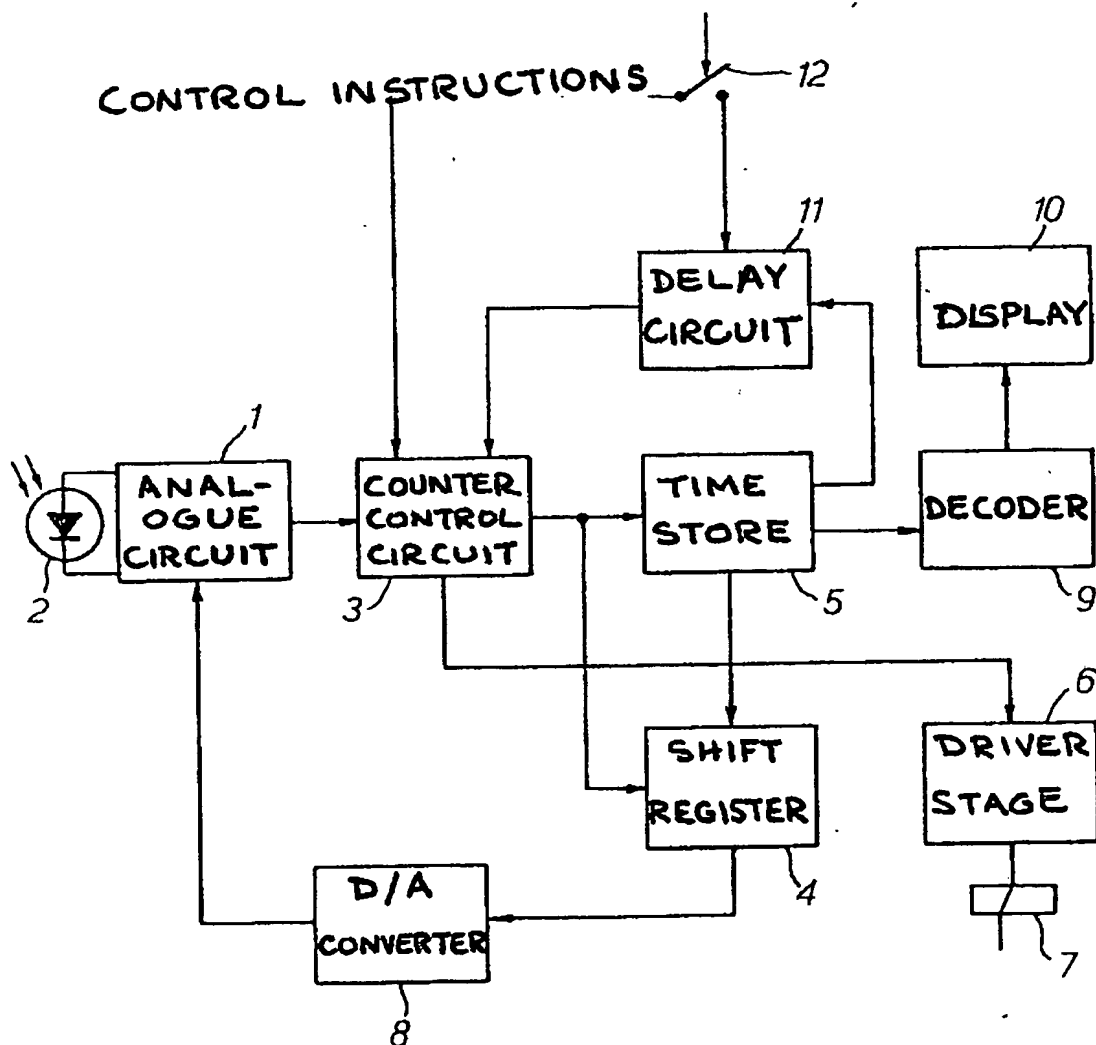
(57) A delay circuit 11 is connected between a release switch 12 and a release electromagnet 7 and is automatically enabled when the

calculated exposure time exceeds that at which camera shake is important. In this way the jolting of the release action is over before the shutter opens. The shutter time is computed at 1, stored at 5 and displayed at 10.



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SPECIFICATION

Camera Having Electromagnetic Release and Pre-Indication of the Expected Exposure Time

The invention relates to a camera with
5 electromagnetic release of the exposure-setting members which run off under spring force.

In cameras with automatic exposure system it is known on actuation of the camera release to pass an electric signal into a run-off control circuit from which in turn *inter alia* a control pulse is
10 given to a magnet for shutter release. The feeding of the signal into the run-off control circuit takes place in the case of instantaneous shots directly through the camera release and in the case of self-portraits through an electronic pre-timer mechanism (Ger P.S. 43,114, Ger. Pub. Sp.
15 2,651,002).

This pre-timer mechanism can be used, as well as for the stated purpose, equally to reduce the
20 danger of camera shake in those exposures where the pre-indicated exposure time already lies above the so-called hand-held camera times, but a tripod is not yet to be used. For such exposures steady holding of the camera is especially
25 necessary. The latter is guaranteed according to experience by a release action of the camera which is controlled not directly by the hand-actuated camera release but by the pre-timer mechanism. Thus after such an exposure time is
30 noted in the camera viewfinder, firstly the camera must be taken away from the eye again, the pre-timer function should be prepared and then the release actuated. However such a procedure makes handling of the camera complicated.

The invention is intended to achieve an
35 increase of utility value of the camera due to simplified operation.

It is the problem of the invention to produce a camera with electromagnetic release which
40 increases the shape-freedom of exposures with exposure times lying already somewhat above the so-called hand-held camera times, in that the camera is already held in the optimum steady position by the operator as the exposure settling
45 members are unning off, without the necessity of preparing the camera for such exposures.

In accordance with the invention this problem is solved in that a delay circuit is used which is activated in dependence upon a signal value
50 corresponding to the exposure time and is connected into the signal path between a switch actuated in known manner by the camera release and a release magnet.

The invention will be explained below by
55 reference to an example of embodiment.

An analog circuit 1 which contains an amplifier for the signal delivered by a photo-receiver 2 and a circuit for introducing pre-selectable exposure factors such as a diaphragm aperture value and
60 film sensitivity is followed by a run-off (counter) control circuit 3 which is in connection with a work register 4, an exposure time store 5 and a driver stage 6 for a release magnet 7. The work (shift) register 4 is fed back through a

85 digital/analog converter 8 to the analog circuit 1. At the output of the exposure time store 5 there lie on the one hand a de-coder 9 with an indicator unit 10 actuated by it for the pre-indication of the exposure time to be expected, and on the other
70 hand a delay circuit 11 which is in connection with the run-off control circuit 3 and thus lies in the signal path between a switch 12 actuated by the camera release (not shown) and the release magnet 7.

75 The manner of operation is as follows:—

During a measurement phase initiated by means of the camera release a pulse sequence, caused by the output signal of the analog circuit 1, is entered by the run-off control circuit 3 into
80 the work register 4 and into the exposure time store 5, and corresponds to the expected exposure time. The latter can be read from the indicator unit 10. If the exposure time lies within the time range in which there is no danger of
85 shake, on further depression of the camera release a closure of the switch 12 occurs with the effect that this closure pulse without delay reaches the run-off control circuit 3 and the instruction is given by the latter *inter alia* for the
90 actuation of the release magnet 7.

If the calculated exposure time is so long that in order to avoid shaking especially steady holding of the camera is necessary, for example above one-quarter second, the signal lead leading from
95 the exposure time store 5 to the delay circuit 11 conducts a specific level. This has the effect that the control pulse coming from the switch 12 arrives at the run-off control circuit 3 only when it has been delayed by about 0.5 sec. in the delay
100 circuit 11. With this automatically occurring delay in relation to the actuation of the release now the release magnet 7 is also activated and deactivated by the run-off control circuit 3 and thus the camera is released without jolting. The
105 delay is long enough for the involuntary movement of the camera, caused by the actuation of the release, to be brought to rest again before the exposure commences. The necessity of using a tripod at exposure times as short as these is
110 thus reduced. The shift of the moment of exposure involved with the slight release delay is insignificant in exposures of this kind. The delay circuit can be formed as a separate unit or as part of an electronic pre-timer mechanism in the form
115 of a digital or analog circuit, present in any case. In place of the exposure time store 5 the necessary level of the signal lead leading to the delay circuit 11 can also be derived from an electric value fed to a measuring mechanism for
120 the pre-indication of the exposure time.

Claims

1. A camera with electromagnetic release and pre-indication of the expected exposure time, wherein a delay circuit is used which is activated
125 in dependence upon a signal value corresponding to the exposure time and is connected into the signal path between a switch actuated in known

manner by the camera release and a release magnet.

2. A camera as claimed in claim 1, wherein the signal value activating the delay circuit is derived from an exposure time store.

3. A camera as claimed in claim 1, wherein the signal value activating the delay circuit is derived from a measured value conducted to a measuring mechanism.

4. A camera as claimed in claim 1, wherein the delay circuit is arranged to precede a run-off control circuit known *per se* which initiates the

mechanical and electric functions for the exposure operation.

5. A camera as claimed in claim 1, wherein the delay circuit is formed by a part of an electronic pretimer mechanism.

6. A camera as claimed in claim 1, wherein the delay circuit is formed by a digital or analog circuit.

7. A camera with electromagnetic release and pre-indication of the expected exposure time, substantially as described with reference to the accompanying drawings.

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